

CLAIMS

1. A medical device comprising driver means for imparting translational movement to a member, the driver means comprising a motor driven unthreaded shaft (200), at least one bearing (260, 270, 280) mounted obliquely to the shaft and having at least one point of contact therewith, and an actuator (800) linked to the at least one bearing for contacting the member wherein rotation of the shaft causes movement of the bearing along the shaft to affect movement of the actuator.
2. A medical device as claimed in claim 1 wherein a single bearing is provided and the shaft is supported at one or more points along its length by a rotary member.
3. A medical device as claimed in claim 2 wherein the rotary member is provided on an opposite side of the shaft to the contact point of the bearing.
4. A medical device as claimed in claim 1 wherein at least three bearings (260, 270, 280) are provided with alternate bearings (260, 280) being mounted at the same angle relative to the shaft (200) and adjacent bearings (260, 270) being mounted at an opposing angle relative to the shaft.
5. A medical device as claimed in any one of claims 1 to 4 wherein each bearing has a bore through which the shaft passes, the bore being larger than the outer circumference of the shaft.
6. A medical device as claimed in claim 5 wherein the bearing has a pointed inner profile.
7. A medical device as claimed in claim 5 wherein the bearing has a flat inner profile with a chamfered inner race.

8. A medical device as claimed in claim 7 wherein each bearing is angled with respect to the shaft such that it contacts the shaft at at least two points.
9. A medical device as claimed in any one of claims 4 to 8 wherein three bearings are provided, the outer bearings contacting the bottom of the shaft and the central bearing contacting the top of the shaft or vice versa.
10. A medical device as claimed in any one of the preceding claims wherein the angle of inclination of each bearing (260, 270, 280) relative to the shaft (200) is less than 45 degrees.
11. A medical device as claimed in any one of claims 1 to 4 wherein the inclined bearings are symmetrically spaced in one plane perpendicular to the shaft axis, the outer races of the bearings making radial contact with the shaft.
12. A medical device as claimed in claim 12 wherein the bearing is spring loaded.
13. A medical device as claimed in any one of the preceding claims wherein the or each bearing (260, 270, 280) is housed within a carriage (400) that is moveable with respect to the shaft (200).
14. A medical device as claimed in claim 12 wherein the carriage (400) is connected to the actuator (800).
15. A medical device as claimed in claim 14 wherein the carriage is provided with guides.
16. A medical device as claimed in any one of the preceding claims wherein the means is provided for manually disengaging the at least one bearing (270) to enable it to slide independently of the shaft (200).

17. A medical device as claimed in claim 16 wherein a bearing is spring-loaded with respect to the shaft whereby operation of the spring mechanism disengages the bearing from the shaft.
18. A medical device as claimed in claim 16 wherein manual disengagement is affected by movement of a housing (370) containing a bearing (270) in a direction transverse to the shaft to lift the bearing from the shaft.
19. A medical device as claimed in claim 18 wherein a cam (500) and lever is used.
20. A medical device as claimed in any one of claims 1 to 15 wherein automatic means is provided for reversing the direction of travel of the bearings and actuator along the shaft.
21. A medical device as claimed in any one of the preceding claims wherein the bearing is provided with adjustable biasing means (502, 504, 506).
22. A syringe driver assembly comprising driver means for imparting translational movement to a syringe plunger, the driver means comprising a motor driven unthreaded shaft (200), at least one bearing (260, 270, 280) mounted obliquely to the shaft and having at least one point of contact therewith, and an actuator (800) linked to the bearing for contacting a thumbplate of the plunger wherein rotation of the shaft causes movement of the at least one bearing along the shaft to effect movement of the actuator.